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China Report

AGRICULTURE

No. 154

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I. GENERAL INFORMATION

EARLY EXPERIENCES IN HYBRIDIZATION OF RICE RECOUNTED

Beijing RENMIN RIBAO in Chinese 6 Jul 81 p 3

[Article: "Why It Was Possible to Very Rapidly Improve and Popularize Hybrid Rice"]

[Text] There is a large element of trial and error and great difficulty in hybrid rice research. Many countries have conducted research for several decades without breeding combinations with strong heteroses for use in production. What is the reason that China was able within a fairly short period of time to improve and rapidly extend hybrid rice to cultivation over large areas. What inspiration does this provide for development of China's agriculture and agricultural research?

Concrete and Painstaking Support of Party and Government Leaders at All Echelons

From the breeding to popularization of hybrid rice, the concern of the party and the government with scientific endeavors was reflected from beginning to end, and it was conducted under the organization and guidance of leadership cadres at all echelons.

As long ago as 1966, Yuan Longping [5913 7127 1627], a teacher at the Qianyang Agricultural School, published an article for the first time in "KEXUE TONGBAO" [SCIENCE BULLETIN] titled, "On Male Sterile Lines in Rice," which was based on this personal observations and research. Though short, this article was the first in China to discuss hybrid rice. This new scientific spark aroused the serious attention of a then director of the State Science Commission, who wrote a letter to the Hunan Provincial Science Commission and to Qianyang Agricultural School asking their support for this significant experiment by Yuan Longping.

During the 1970's, when as yet no striking advances had been made in this research work, all sorts of comments were made attacking Comrade Yuan Longping, which made it difficult to carry on the work. During this critical time, Hunan provincial leaders invited Yuan Longping to a provincial conference for the exchange of scientific and technical experiences in agriculture, which gave him encouragement. This research was also made a key scientific research project for the province, and a cooperative unit was established. A deputy secretary of the Provincial CCP Committee gave support to this research. In 1974, a leader of the Hunan Provincial Academy of Agriculture saw the rice grown from 72 grains of hybrid bred by a labor model at the Xinhua County Institute of Agriculture, every grain of the hybrid rice grew luxuriantly and heteroses were apparent: He took these seedlings to Changsha where he exhibited them. He also distributed a small amount of hybrid rice seeds to the secretaries of county CCP committees in each county asking each person to farm a 1 mu experimental field to observe the hybrid heteroses. In order to prepare conditions for large area plantings, during the winter of 1974, Hunan Province collected sterile line seeds throughout the province totaling only 32 jin, which they used for breeding. They also organized a large army of up to 10,000 people for seed production, carrying out a war in Hainan during winter, in Zhanjiang in spring, and in Nanning in fall, both experimenting and propagating seeds. By the spring of 1976, the sterile line seeds had been reproduced from 32 jin to 1.5 million jin, and 2.5 million jin of hybrid made up. Seed production rose from the initial 20 to 30 jin per mu to more than 100 jin. During the several major stages in hybrid rice research, such as 1972 when there was as yet no breakthrough on the "three lines," and 1975 when small area experiments just began, numerous leadership cadres gave vigorous support, which played a major role in the deepgoing development of this research. In the winter of 1974 when test planting just began, the Ministry of Agriculture and Forests promptly convened a meeting at which it assigned test planting and popularization work. Every province set up a hybrid rice office,strengthened leadership, and trained large numbers of technicians to expand propagation, seed production, and the popularization of hybrid rice. When money was needed it was available; when people were needed, they were provided; and when chemical fertilizer was required, it was given for vigorous support of this work.

An Ambitious, Courageous, and Resourceful Scientific and Technical Corps

During the mid-1960's when Yuan Longping began this research, numerous countries had conducted research for 20 to 30 years without success, and this was a time of ceaseless controversy. When some people learned that Yuan Longping had begun this research, they said things like "three lines, three lines; three generations of no accounts," and "a lazy toad who dreams of eating swan flesh." During the 10 years of turmoil, not only did Yuan Longping come under criticism, but even his experimental pots were confiscated as bourgeois personal possessions, and smashed. Taking advantage of the absence from school of Yuan Longping and colleagues, some people pulled up all the rice seedlings in their experimental fields and threw them into a well. Only 3 days later did Yuan Longping find five seedlings floating in the well. Faced with these various attacks, he said with determination, "I do research for the building of socialism; it is absolutely impossible to make me give up hybrid rice research!" Almost all other scientists and technicians participating in and lending support to hybrid rice research were subjected, in one degree or another, to labeling for various political crimes, but they did not lose heart or become dejected, but persevered in struggle against all sorts of conservative ideas. While suffering setbacks, they summarized the lessons of experience, receiving inspiration from the incompatibility revealed in distant hybridization, and resolutely escaped from the path of research of foreigners of "hybridization of xian rice with xian rice," and "hybridization of xian rice and geng rice," determinedly seeking a breakthrough from wild resources. Dedication to the work spurred them on. Yuan Longping and his assistant Li Bihu [2621 1801 3275], endured the hardships of a long journey to go to Yunnan Province to hunt for wild rice, which when grown in Hunan was unsuccessful. Again they set off on a long journey to the southernmost tip of the motherland on Hainan Island in a search. Finally, Li Bihu found common wild rice that was male aborted in a tract of marshy land, and this provided a foundation for improvement in hybrid rice. They conducted investigations and experiments of many kinds and surmounted countless hardships before successfully producing a sterile line, a sterile-free line, and a restorer line. During those difficult days scientists and technicians, who had formerly been strong and vigorous, finally became feeble. Some had not even returned home for the lunar new year for 9 years in a row. Some postponed marriage several times, and when the wives of some became ill, they did not care to return home to look after them. It was precisely such a spirit of devotion to science that enabled them finally to reveal the mysteries of hybrid rice.

Spirited and Lively Great Socialist Cooperation

A wideranging and enduring great cooperation created extremely beneficial conditions for hastening the spread of research on hybrid rice. In the spring of 1972 the Ministry of Agriculture and Forestry convened a national agriculture and forestry science symposium, which made hybrid rice research a national focus, with the Chinese Academy of Agricultural Sciences and the Hunan Institute of Agriculture being responsible for organizing a great cooperative nationwide effort. Within a short period of time, the number of units cooperating shot up to more than 100 units in more than 10 provinces and municipalities. The Chinese Academy of Agricultural Sciences was responsible for convening one or two national hybrid rice research cooperative conferences annually, and during several crucial years, numerous provinces, prefectures, and counties held several conferences annually to assign research tasks.

This great cooperation was able to promptly analyze progress in the research work, designate targets for attack, and formulate cooperation plans so that units kept in step with each other and digressed as little as possible.

This great cooperation enabled others to profit from experiences in a place. After the 1970 discovery of "wild abort," Hunan Province very quickly sent "wild abort" materials to more than 10 units inside and outside the province for hybrid experiments. It also trained technicians for other provinces so that research work could get underway at numerous units. After slightly more than only a year, using materials and methods provided by Hunan, Jiangxi was first to breed sterile lines and sterile-free lines. It was followed by the breeding in Hunan and Fujian of sterile-free and sterile lines. In the attack on a restorer line, they also cooperated. Not long after Guangxi first came up with a strongly superior restorer line, Hunan and Jiangxi provinces came up with a group of strongly superior restorer lines.

This great cooperation rallied forces in all quarters. Some prefecture and county agricultural institutes and production units either created new methods for propagating and producing seeds or figured out new methods of culturing techniques. Some institutions of higher learning, and research institutes registered achievements in basic theoretical research. Meteorological units did a great amount of research on the relationship of sunlight and temperature conditions on growth, development, and kernel development of hybrid rice. All made contributions from different standpoints.

Proper Research Methods

Hybrid rice research work made a thoroughgoing probe of production realities, and followed a program of linking closely research and production. In breeding the sterile line, attention was given to converting the sterile properties of the "wild abort" to China's short stem superior rice varieties,aand selecting materials with outward opening stigmas for which the hybridization rate is high to meet the needs of China's rice production. In selection of restorer lines, in addition to giving attention to the conditions necessary for restorer lines, they also gave extreme attention to bumper yield traits, disease resistance traits, resistance to lodging traits, and such economic properties. Once the three lines had been matched, prompt inspection was made of their performance in production and research was done on seed production techniques in order to create conditions for expansion to cultivation over large areas. They also used requirements in production to summarize a set of growing experiences, moving ahead both superior varieties and superior methods at the same time.

The mutual linkage of a specialized corps with the masses played a major role in research on propagation and seed production and in farming techniques for hybrid rice. After 1974, in order to study seed propagation and seed production techniques, each province organized a mass corp consisting of several tens of thousands of the masses in which technicians were the mainstays. Experience has shown that the method of linking specialized personnel and the masses in the propagation and production of seeds and in cultivation of hybrid rice is a successful experience.

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USE OF MAGNETISM TO INDUCE NITROGEN FIXING ROOT NODE FORMATION REPORTED

Nanjing XINHUA RIBAO in Chinese 17 Mar 81 p 1

[Article by Correspondent Zhu Weiwei [4281 5898 5898]: "Wang Manxin [3769 2581 2450] Induces Root Nodules on A few Score Varieties of Non-Legume Crops Following Repeated Experiments Under Arduous Conditions"]

[Text] Following repeated experiments, Nanjing resident, Wang Manxin has artificially induced root nodules similar to those found on leguminous plants on more than 60 varieties of non-leguminous plants.

Leguminous plant nodule bacteria can convert atmospheric nitrogen to amino acids necessary for plant growth. Therefore, for the past 100 years, scientists in all countries have bent efforts toward research in the process whereby nitrogen is biologically fixed by root nodule bacteria. British scientists have noted that creation of root nodule bacteria for general use by all kinds of crops is a marvelous idea. American scientists have acknowledged that invention of all-purpose root nodule bacteria for plants is a fascinating problem. If suddenly non-leguminous plants were able to form nodules to fix nitrogen, that would create great wealth for mankind. As of now, no such breakthrough has been made in China or abroad.

Comrade Wang Manxin is an old man in his sixties. During the early 1970's, he used megnetized water in a factory to treat boiler rust scale, and later used magnetic methods to treat hardened and impervious soils. In the course of experiments, he discovered that root nodule bacteria on legume crops exhibited exceptionally growth in this kind of soil, and so he considered experiments using magnetic methods to induce root nodules on non-leguminous plants. Beginning in 1977 and working under arduous conditions, he set about these experiments. Using leguminous root nodule bacteria as bacteria strains, he repeatedly conducted culturing experiments, inducing formation of root nodules on more than 60 plant varieties, one after another, including the squash family, the pulse family, the grass family, the eggplant family, the persimmon flower family, and even trees, and flowering plants. He conducted experiments on two generations of wheat, 30 percent of the wheat forming root nodules during the first generation, and even more in the second generation. During the year before last and last year, he worked together with two nearby production teams to induce root nodules on a fairly large area of eggplant.

Root nodule nitrogen fixation is done at normal temperatures and normal pressure without polluting the atmosphere. If root nodule bacteria become attached to grass family crops, not only are crop yields vastly increased, but the great reliance of modern agriculture on nitrogenous fertilizer is reduced for a great saving in energy consumption, and reduction or elimination of the environmental pollution chemical fertilizers cause. This also offers fascinating prospects of new avenues for genetic research. Of course a great deal of work remains to be done in this research, and further analysis and research by experts is awaited. For the moment, this work has aroused extreme interest among scientistics and units concerned in China.

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EDIBLE OIL OUTPUT REACHES ALL TIME HIGH MAKING CHINA NET OIL EXPORTER

Beijing RENMIN RIBAO in Chinese 27 May 81 p 1

[Article: "Edible Oil in Storage in China Reaches an All-time High to Bring an End to a Many Year History of the Chinese People Consuming Imported Oil; Institution of a System of Responsibility for Production and Scientific Farming Brings Increases in Edible Oil Year After Year"]

[Text] Just as materials provided at the conference of grain department and bureau chiefs convened in Beijing show, the many year history of China's consumption of imported oil has come to an end. Beginning in 1980, China's exports of oils and fats exceeded the quantities imported.

Reportedly, the quantity of edible oil in storage in China currently exceeds the all-time high.

During the 1950's China was one of the edible oil exporting countries of the world with annual exports of edible oil averaging 480 million jin annually. But beginning in 1960, because of the effects of "leftist" errors on the guiding mentality for agricultural production, China's edible oil output dropped, and in some years there was no choice but to rely on importation of some edible oil to make up the shortage within the country. At its height, 240 million jin of edible oil was imported in a single year. Data from the Food Ministry shows that ever since the Third Plenary Session of the 11th Party Central Committee, with the active implementation in rural villages of the party's economic policies, general promotion of a diversified system of responsibility for production, the adaptation of general methods to local situation in raising oil crops, and the simultaneous increase in the requisition purchase price and the excess procurement price paid for oil, the enthusiasm for production of the peasants has been greatly aroused. As a result, edible oil output has risen for 3 consecutive years: Total oil output in 1978 (oil crops converted to oil) rose from 3.318 billion jin during the previous year to 4.134 billion jin. In 1979, it reached 4.931 billion jin, and climbed again in 1980 to 5.526 billion jin.

This year saw another bumper summer harvest of oil crops. According to statistics, save for an especially great calamity, further increases in oil crops will occur in the fall, and nationwide oil output that breaks 6 billion jin is anticipated.

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FOOD INDUSTRY FIGURES GIVEN--Accompanying major growth in agricultural byproducts production has been the beginning of a good trend in China's food industry. Statistics from departments concerned show a gross output value in the food industry last year that was 9.6 percent greater than the year before, and 20.4 percent greater than 1978, which was before economic readjustment. Great growth occurred in production of all major foodstuffs. As compared with 1978, grain and edible oil processing last year increased by 8.62 percent with edible oil increasing by 33 percent, and sugar increasing by 13.4 percent. Butchering and meat processing increased by 44 percent, and beverages and alcoholic drinks increasing by 49.21 percent, beer increasing by 70.3 percent, and milk products increasing 132.3 percent. Powdered milk increased by 64.7 percent, and canned milk increased by 17 percent. Quality, sanitation, and packaging of all categories of foodstuffs increased and improved. Light industry statistics show that during the past 2 years 142 kinds of alcoholic beverages, sugar, and cigarettes have been awarded national prizes for superior quality or have been issued certificates of superior quality. Development of the food industry is an outgrowth of economic readjustment. [Text] [Beijing RENMIN RIBAO in Chinese 24 May 81 p 1] 9432

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AGRICULTURAL SPECIALISTS MEETING--Gu Zhuoxin, second secretary of the Anhui Provincial CCP Committee, presided over a meeting of agricultural specialists sponsored by the committee's Standing Committee on 16 June. Present at the meeting were a number of specialists from the provincial agricultural commission, various departments concerned, Anhui agricultrual college and Anhui provincial academy of agricultural sciences. Leaders of the provincial people's congress' Standing Committee and provincial government as well as other departments concerned sat in on the meeting. It was held to review the efforts made in Anhui in research in agricultural science and its popularization and to solicit opinions and suggestions from the specialists. The meeting noted an upsurge in the countryside in studying and applying science, and called for measures to sustain and boost this widespread enthusiasm to expand agricultural, forestry and animal husbandry production and diversify the economy. [Hefei Anhui Provincial Service in Mandarin 1100 GMT 21 Jun 81 OW]

CROPS PROCUREMENT--Hefei, 27 Jun (XINHUA)--Commune members in Chuxian Prefecture, Anhui, are enthusiastically selling summer grain and oil-bearing crops to the state, after reaping good harvests in 1981. The total summer grain crops increased by 20 percent over the same period in 1980, and the total oil-bearing crops reach 147 million jin. By 19 June, the procurement quotas for summer grain and oil-bearing crops were overfulfilled respectively by 22 percent and 182 percent. [OW040545 Beijing XINHUA Domestic Service in Chinese 0148 GMT 27 Jun 81]

SUMMER CROPS--Hefei, 29 Jun (XINHUA)--Anhui Province has reaped a good harvest of summer grain crops in 1981. The total acreage is more than 30 million mu. The total output may reach 8.4 billion jin. This shows an increase of more than 1.1 billion jin over the same period in 1980, and is the highest in history. [OW040539 Beijing XINHUA Domestic Service in Chinese 0731 GMT 29 Jun 81]

CSO: 4007/507

READJUSTMENT OF AGRICULTURAL STRUCTURE PUSHED

Diversification To Absorb Surplus Labor

Fuzhou FUJIAN RIBAO in Chinese 17 Apr 81 p 1

[Text] Once a system of responsibility for agricultural production has been put in place, what is to be done with the surplus workforce? In Sanming Prefecture and each of its subordinate counties, leaders have busily gone down into the countryside to conduct classic investigations, summarize experiences, further eradicate the effects of "leftism," actively help communes and brigades seek opportunities for surplus labor, devise plans, and vigorously develop diversification, even while assuring increased grain output. A new atmosphere of "two busys" (very busy with spring farming and very busy with diversification) has arisen now in rural villages throughout the prefecture.

This year, Sanming Prefecture planned net grain increases totaling 80 million jin. As a result of contracting done in the implementation of various forms of a system of responsibility, commune member enthusiasm is very high, the pace of preparations for spring farming is very fast and quality is also better than last year, grain acreage and grain output are both better assured, but the problem of a large workforce surplus exists conspicuously before everybody's eyes. In Lixin Commune in Jianning, where one person can farm 3 mu of land, the workforce was formerly considered insufficient. But this year following the signing of contracts, there is a great surfeit of labor. At the Wanan Commune in Jiangle County, calculations based on contracts show an excess workforce of more than 900 people. The prefecture has a workforce of 430,000, of whom 300,000 have signed contracts to grow grain, leaving a surplus workforce of 130,000. Additionally, there is a seasonal excess in workforce. Unless prompt action is taken to find employment opportunities for the excess workforce, inevitably a situation will occur at year's end of increased grain output and reduced commune member income. The Sanming CCP Committee has foreseen this situation and last month organized forces to have three teams under the leadership of the secretary of the Prefecture CCP Committee, the deputy secretary and Standing Committee, and the deputy assistant director make separate visits to Shaxian, Longqi, and Jianning counties to conduct classic investigations. Meanwhile, leaders of each county also went down to the grassroots levels to conduct investigations and study in concert with commune and brigade cadres, to summarize experiences, to collect data on the situation, and to discuss with commune members ways and means of developing diversification.

Sanming Prefecture is a mountain region where rural diversification is principally in the direction of barren mountains and water surfaces. Additionally, full use may be made of some single season late rice crop fields to grow economic crops in a single season, planting them in the spring and harvesting them in the summer. As a result of discussions among cadres and commune members, the "five grasps" were proposed. First was grasping of farming, by which was meant diversification into tea, citrus, as well as into economic crops harvested in the same year they are planted such as peanuts, soy beans, and watermelons. Second was grasping of raising, by which was meant the raising of hogs, cattle, fowl, and fish. In addition to collective raising, commune members could individually raise animals without being subjected to limitations. Third was grasping of forestry and sideline products and industrial sideline production. While fulfilling afforestation plans and maintaining forest resources, vigorous development could be done in the collection of resins, production of dried bamboo shoots, paper, and such native products, and in processing industries. Fourth was grasping special native product areas (such as areas where dried bamboo shoots and native paper production were concentrated) for institution of special policies, such as readjustment, and reduction or exemption from grain requisition procurement quotas, requiring instead that more native products be supplied to the state. Fifth was grasping conservation of agricultural resources, using promotion of "complete fertilization," increase in the number of seedling observation stations, rational fertilizations and spraying of pesticides, and strict control of nonproductive expenditures. In these ways, predicted diversification and conversion of agricultural resources can be increased by one-third over last year. With the addition of a part of grain increases, average per capita distribution of income might increase by more than 20 yuan.

The aforementioned plans were revised and enlarged into contracts in further improvement in the system of responsibility. The zeal of the masses was very great, and their actions very rapid. In Jianning County, where the lotus seed area plans increased from last year's 2000 mu to 4000 mu, more than 1,900 more mu have been newly planted. New hillside tea groves throughout the prefecture cover 100,000 mu, of which more than 97,000 mu has already been planted to tea, an amount as great as the total planted in the 30 years since Liberation. A fish raising area of 110,000 mu is already available, a 20,000 mu increase over last year for the growing of more than 4 million fish. Last year a collective duckling farm hatched 960,000 ducklings. This year, it has already hatched more than 200,000. The number of ducklings brought in from elsewhere rose from last year's 1.8 million to 2.87 million, not counting those hatched by private individuals. As of 7 April, the prefecture had planted more than 3000 mu of peanuts, more than 800 mu more than for the same period last year. The total acreage will reach 21,000 mu, 10,000 mu more than last year. The area planted to watermelons and zigua [4750 3900] will increase from last year's 7000 mu to more than 20,000 mu, of which more than 4800 mu has already been planted. More than 23,000 mu of spring soy beans have been planted, 17,000 mu more than for the same period last year.

Internal Structure of Agriculture

Fuzhou FUJIAN RIBAO in Chinese 17 Apr 81 p 1

[Text] As a result of long term impairment of "leftist" ideology, the lack of concern for objective reality and no adaptation of general methods to local circumstances for a fairly long period in the past, agricultural production in Fujian

Province has suffered from an irrational internal structure. Statistics show that in 1980, farming in the form mostly of grain farming, accounted for 61.77 percent of the province's total output in agriculture. Forestry, animal husbandry, sideline industries, and fisheries accounted for the remaining 38.23 percent. In farming, output value from grain accounted for between 70 and 80 percent of the total. Such an irrational structure is indicative of the low level of agricultural production in Fujian, and it is a root cause for the inability of the peasants' livelihoods to prosper rapidly. In the process of readjusting the national economy, we must do well in carrying out the programs and policies of the CCP Central Committee and the State Council, and bring about a change in the proportional imbalance internal to agriculture.

The key to readjustment of the internal structure of agriculture lies in good handling of the relationships among agriculture -- principally grain -- and forestry, animal husbandry, sideline industries, and fisheries. Increase in grain output is still a major matter in the national economy of Fujian Province. The province suffers from an insufficiency of cultivated land, and with the increase in population and the growth of industry, the shortage of grain supplies cannot be ameliorated within a short period of time. Consequently, in view of the situation in the province, it will continue to be necessary henceforth to give strict attention to grain output, and to assure annual incremental increases in total grain output. There can be no wavering on this point. On the other hand, Fujian Province has much mountain land and broad water surfaces, abundant natural resources, and fine climatic conditions, extremely beneficial for development of forestry, animal husbandry, sideline occupations, and fisheries. Consequently, we cannot have our vision stop at the limited amount of cultivated land, but must emancipate our thinking, expand our range of vision, and study well the "Mountain and Sea Classic," vigorously develop diversification, and gradually increase the ratio of forestry, animal husbandry, sideline industries, and fisheries in the agricultural economy. While developing diversification, it is necessary also to assure steady increases in grain output. But how can this contradiction be solved? The way lies in scientific farming of the fixed grainfield area, and while increasing per unit yields of grain to adopt proper policies and measures to make the most of both collective and individual initiative, rationally employ both soil and the workforce to achieve maximum advantage from the soil, maximum utilization of materials, and maximum exercise of human ingenuity, using for agriculture whatever is suited to agriculture, for forestry whatever is suited to forestry, for animal husbandry whatever is suited to animal husbandry, and for fisheries whatever is suited to fisheries, combining grain output and diversification, and using sideline industries to nurture agriculture, the better to develop the agricultural economy.

Readjustment of the currently irrational internal structure of agriculture is most certainly not something that can be accomplished overnight. It will require unremitting effort over a long period of time. Therefore, the course must be fixed, the steps measured, and no action taken with undue haste. Nevertheless, it is necessary to adopt an activist attitude, seize advantageous opportunities, and promote this task. This year all of Fujian Province's rural villages instituted a system of responsibility for agricultural production, providing an unprecedentedly fine opportunity for readjustment of the internal structure of agriculture. Investigations in Sanming Prefecture show that the cultivated land area in the prefecture is less than one-tenth the total land area, while past investment of the workforce on it amounted to 80 percent of the total available workforce. Meanwhile, on the more than 90 percent of the total area that was mountainlands and water surfaces, only 20 percent of the workforce was employed. Following institution of the system of responsibility, the prefecture estimated that between 20 and 25 percent of the workforce became available for other work, and could be used in diversification. During spring farming time in former years, rural villages were busy doing a single thing -- transplanting rice seedlings. This year they were busy doing two things -- transplanting rice seedlings, and busy with diversification. This shows that with a system of responsibility for production, there is much latitude for developing diversification potential. We must realize this new situation and take hold of the opportunity to give a boost to diversification, and do a solid job of readjusting the internal structure of agriculture.

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CSO: 4007

BRIEFS

AGRICULTURAL MEETING--The Fujian provincial agricultural commission recently sponsored a meeting on rural work for the second half of this year. The meeting, attended by chairmen of prefectural and municipal agricultural commission, called for continued efforts to implement the relevant documents of the central organs, to carry out the instructions issued by the Fujian Provincial People's Government on agricultural development and to strengthen the systems of responsibility in agricultural production. The meeting also urged that the policy of private plots and hills be conscientiously carried out and that attention be paid to both grain and sideline production. [OW071459 Fuzhou Fujian Provincial Service in Mandarin 1120 GMT 29 Jun 81]

MOUNTAIN TREE OWNERSHIP--The Fujian Provincial People's Government has adopted a resolution to insure the ownership of mountain trees. The resolution points out that insuring the ownership of mountain trees and adopting a system of responsibility for tree planting are the two basic measures to protect forests and to develop forestry. It is essential to recognize the existing ownership of trees and implement the policy of "whoever plants the trees will own them and those who plant the trees collectively will own them collectively." County and municipal people's governments will issue certificates of ownership. [OW071459 Fuzhou Fujian Provincial Service in Mandarin 1120 GMT 28 Jun 81]

AQUATIC PRODUCTS PROCUREMENT--Fujian Province increased procurement and export of aquatic products in the first 5 months of this year, thanks to implementation of production responsibility systems in fishing areas. In this period, the province has produced 3.67 million dan of aquatic products, or 1.12 million dan more than the same period of 1980. [Fuzhou Fujian Provincial Service in Mandarin 1120 GMT 27 Jun 81 OW]

EARLY RICE PESTS--Fuzhou, 22 Jun (XINHUA)--Agricultural science departments in Fujian Province have been helping the peasants learn how to combat disease of early rice and protect plants. Over 5 million mu of early rice in the province have been plagued by insect pests caused by incessant rain in mid-June. [Beijing XINHUA Domestic Service in Chinese 0226 GMT 22 Jun 81 OW]

AGRICULTURE BANK LOANS INCREASE--Loans issued during the first quarter by the Bank of Agriculture and credit cooperatives throughout Fujian Province have amounted to more than 170 million yuan, a 30 percent increase over the same period last year. Following strengthening and perfection of various forms of a system of responsibility for production in rural villages throughout the province this year, commune member enthusiasm for production is high, and new changes have taken place in requirements for the means of production and capital for production. In response to this new turn of events, the Bank of Agriculture and credit cooperatives everywhere have organized large numbers of cadres to conduct investigations on the front line of production, and have promptly issued loans to communes, brigades, and commune members to advance their work. In Longqi Prefecture, where the season comes early, more than 26 million yuan in agricultural loans of various kinds have been issued. This is more than 6 million yuan more than for the same period last year. Acting on the basis of production requirements in Changting County, the Bank of Agriculture has issued loans totaling more than 1.84 million yuan as of mid-March. This is a 40 percent greater amount than for the same period last year. The loans have gone toward helping communes, brigades, and commune members buy more than 700 tons of chemical fertilizer, 120 draft oxen, 69 tractors, and other means of production needed for spring farming. [Text] [Fuzhou FUJIAN RIBAO in Chinese 11 May 81 p 1] [9432]

CSO: 4007

BRIEFS

AGRICULTURAL SCIENCE RESEARCH--Recently, the provincial people's government allocated a special fund of 800,000 yuan for agricultural science research departments, increasing the funds expended for research work, after Ren Zhongyi of the provincial party committee attended a forum of agricultural consultants and experts at the beginning of this month. At the forum, Comrade Ren Zhongyi repeatedly stressed the importance of carrying forward the spirit of self-reliance in agricultural science research and asked scientific research departments to adhere to the principle of achieving more with less expenses, give play to Guangdong's exceedingly favorable natural conditions and to the favorable conditions and superiority of having relatively more scientific research institutes and research workers in Guangdong, unite as one and make joint efforts in scoring greater achievements in agriculture. [HK260916 Guangzhou Guangdong Provincial Service in Mandarin 20 Jun 81]

CSO: 4007/507

GUIZHOU

BRIEFS

HAILSTORM PREVENTION--Guiyang, 11 Jul (XINHUA)--The Guizhou Provincial People's Government has taken measures to strengthen hailstorm prevention work. During the first 5 months this year, 63 counties and municipalities among the 87 countries and municipalities in the province were hit by hailstormes, with 16 counties hit by hailstorms 3 to 8 times. The area of crops which suffered damages from hailstorms reached over 1.58 million mu. The provincial people's government and the provincial military district's command in charge of artificial rainfall and hailstorm prevention have organized some 300 personnel to conduct experiments in hailstorm prevention by using antiaircraft artillery in 14 counties and municipalities. As a result damages were avoided on an area of 916,400 mu of crops. [OW140927 Beijing XINHUA Domestic Service in Chinese 0040 GMT 11 Jul 81]

CIRCULAR ON DIVERSIFICATION--The Guizhou Provincial CCP Committee recently issued a circular on the development of diversification in the rural areas in the province. The circular stressed that leaders at all levels of the party and the government must understand again the characteristics of the natural conditions of the province, keep the province's total area of some 260 million mu in mind, formulate an overall plan and make comprehensive utilization. The circular held that the agricultural support funds must be readjusted in accordance with the requirements in developing diversification and must not be appropriated for other purposes. [HK230703 Guiyang Guizhou Provincial Service in Mandarin 2315 GMT 8 Jun 81]

CSO: 4007/507

BRIEFS

MULBERRY ORCHARDS MEETING--The Hebei provincial forestry bureau recently held an on-the-spot meeting in Ding County on the management of mulberry orchards. Governor Li Erzhong spoke at the meeting, pointing out the importance of silkworm-breeding and urging governments at all levels to regard silkworm-breeding as an important component of rural diversification and to grasp it firmly and well. He also pointed out that the province has favorable conditions for planting mulberry trees and breeding silkworms. He said that if each person in the province plants 10 mulberry trees, the province would have 480 million mulberry trees or the equivalent of 960,000 mu of orchards. In 1980, some 2,860 brigades throughout the province raised silkworms and 7 of them had an annual output of some 10,000 jin of cocoons. The meeting called on the province to strengthen management of the mulberry orchards. [Shijiazhuang Hebei Provincial Service in Mandarin 0430 GMT 19 Jun 81 HK]

HEAVY RAINFALL IN BEIJING--According to the report of the Beijing Municipal Meteorological station on 4 July at 6 a.m. [2200 GMT on 3 July], it rained heavily and torrentially in the greater part of Beijing Municipality beginning on the afternoon of 3 July. By 4 July at 5 a.m., the rainfall in the greater part of the municipality was 50 to 120 mm. This was the heaviest rainfall since mid-August 1979. It has alleviated the serious drought situation which has lasted 22 months and is very beneficial to agricultural production. It is predicted that it will also rain on 6 and 7 July. [HK110624 Beijing City Service in Mandarin 2300 GMT 3 Jul 81]

TIANJIN RURAL DEVELOPMENT--Tianjin, 27 Jun (XINHUA)--Diversified economy has developed rapidly in the past 2 years in the rural areas of Tianjin Municipality. Compared with 1978 records, the 1980 output of grain and oil-bearing crops were increased respectively by more than 400 million jin and by 35.69 million jin. In 1980, the number of hogs, sheep and chickens increased to respectively 1.27 million head and 4.33 million head, and more than 12 million fresh eggs were procured. In 1980, despite serious drought, rural areas' total income still reached more than 1.05 billion yuan, and each peasant's average income was 155.8 yuan. [Beijing XINHUA Domestic Service in Chinese 0116 GMT 27 Jun 81 OW]

CSO: 4007/507

HEILONGJIANG

BRIEFS

SILKWORM PRODUCTION--There are some 1,500 silkworm breeding centers in Heilongjiang Province's Ningan and Nehe counties, as well as in 37 other counties and municipalities. They produced a total of 5.67 million dan of silkworm cocoons in 1980, fourth in China. The per-unit output averaged 8.59 dan, surpassing all previous records. [SK050631 Harbin Heilongjiang Provincial Service in Mandarin 2200 GMT 4 Jul 81]

CSO: 4007/507

BRIEFS

ANTIDROUGHT WORK MEETING—On 20 June, the Henan Provincial People's Government held a meeting on antidrought work. Responsible comrades of the departments concerned at the provincial level attended and Li Qingwei, provincial CCP Committee secretary and vice governor, presided. The comrades attending listened to the report made by a responsible comrade of the provincial antidrought command on combating drought and made arrangements for antidrought work and farming. They held that it is essential to do well in grasping field management and water control. The meeting called on the province to develop water conservancy construction quickly. [Zhengzhou Henan Provincial Service in Mandarin 1100 GMT 22 Jun 81 HK]

CSO: 4007/507

REPORT ON WHEAT DISEASE, ROTTING RICE SEEDLINGS

Wuhan HUBEI RIBAO in Chinese 11 Apr 81 p 1

[Article by the reporting group of the Provincial Agricultural Bureau: "Powdery Mildew of Whert Is Spreading; Early Rice Is Seriously Affected by Rotten Seedlings"]

[Text] Agricultural experts suggest each locality should grasp tightly and do well the work of summer crops and the prevention of disease and the work of inspecting and supplementing missing seedlings of early rice.

Our province's group of agricultural experts recently went to Xinzhou and Macheng Counties to inspect the situation and pointed out that at present, powdery mildew of wheat is still continuing to propagate. The situation of rotten seedlings of early rice is serious. The experts suggest that each locality should grasp tightly the work of prevention and control of disease of summer crops and the work of inspecting and supplementing the seedlings of early rice.

The 10 experts and professors sent by the Huazhong Agricultural Academy, the Provincial Agricultural Sciences Academy, the Oil Bearing Crops Institute of the Chinese Agricultural Sciences Academy and the Provincial Agricultural Bureau have actually inspected 14 communes, 23 production teams covering 101 points in the 2 counties of Xinzhou and Macheng. They said this year's production of summer food grains and summer oil bearing crops is good and has rarely been seen in past years. Seedling cultivation of early rice during the previous period was also done well. But, since the last 10 days of March, our province has had more days that were overcast and rainy, and fewer days with sunshine, damaged seeds and rotten seedlings of early rice are serious. Disease and damage to summer food grains and summer oil bearing crops have suddenly occurred. At present, the percentage of seedling formation cultivated under thin plastic sheets is only 70 percent, damaged seeds and rotten seedlings in exposed fields have generally reached 46 percent, and in fields seriously affected, this has reached 70 percent. At the same time, the growth of seedlings is thin and weak, wheat snow mold has occurred on a widespread basis. Summer crops are still threatened by sudden disease damage and infection. In particular, powdery mildew of wheat has been rampant, it has occurred in every field in the mountain regions, hilly regions, plains, and the percentage of diseased plants in seriously affected fields has reached 80 to 100 percnt.

The experts believe that at present, if decisive measures are not carried out, the production season of early rice will be delayed, and increased yields of summer food grains and summer oil bearing crops will not be assured. They suggest each locality should immediately grasp tightly inspection and supplementing seedlings of early rice, strengthening management of seedbeds, preventing wheat snow mold disease in time, digging deep trenches, draining away accumulation of water, doing well the work of investigating and forecasting the condition of the disease, grasping tightly prevention and control by chemicals, controling the expansion and spreading of powdery mildew, and at the same time, pay attention to the revention and control of cereal scab of wheat and sclerotinia rot of rape.

9296
CSO: 4007/427

ARTICLE DESCRIBES SUCCESS OF VIRAL INSECTICIDE ON COTTON PESTS

Wuhan HUBEI RIBAO in Chinese 11 Apr 81 p 1

[Article by Liu Guangxin [0491 0342 2450]: "New Success Has Been Obtained in the Study of Biological Prevention and Control of Cotton Insect Pests"]

[Text] Wuhan Virology Institute of the Chinese Academy of Sciences and the Provincial State-Run Jianghu Farm have cooperated and developed for the first time in our nation the use of viruses to prevent and control the cotton bollworm: the insecticide of nuclear polygonal virus of cotton bollworm.

The cotton bollworm is one of the major insect pests of cotton. For a long time, people have used farm chemicals to control and prevent it. Although a definite result has been achieved, the insects have strengthened their immunity against the chemicals, so the dosage of the chemicals has continually been increased. This has caused pollution by farm chemicals, the ecological balance of nature has been destroyed and public damage has resulted. In 1973, the Wuhan Virology Institute of the Chinese Academy of Sciences began to study biological prevention and control of insect pests using insect virus as the means of control and prevention. A type of nuclear polygonal virus was extracted from dead carcasses of cotton bollworms. In 1976, the institute and the provincial state-run Jianghu Farm cooperated and spread the virus to artificially cultivated cotton bollworms to obtain more virus and this was used to make insecticides for spraying in large fields. An epidemic was spread among the cotton bollworms and visible insecticidal effects were obtained. For 5 years, experiments to prevent and control the cotton bollworm and tobacco budworm were conducted, and the results showed the insect population dropped 86.3 percent.

The Chinese Academy of Science, the Wuhan Branch of the Chinese Academy of Sciences invited by the Farm Reclamation Ministry, and the provincial Agricultural Reclamation Bureau held a determination and evaluation conference in Wuhan. Specialists and professors from scientific research units, production departments and universities and colleges of 11 provinces, cities and autonomous regions have determined that the cotton bollworm viral insecticide is specific in its prevention and control, the effect of the chemical is long lasting, the insecticidal results are good, it does not pollute, its production technique is simple, and its rate of production is high.

9296
CSO: 4007/427

JIANGSU

COTTON GROWTH REPORTED GENERALLY GOOD DESPITE SOME DRYNESS

Nanjing XINHUA RIBAO in Chinese 26 May 81 p 1

[Article: "Almost 9.5 Million Mu Sown to Cotton in the Province; Cotton Farmers Intensify Management During Current Drought, Disease, and Insect Pest Calamity"]

[Text] The writer obtained the following yesterday from the Provincial Department of Agriculture and Forests. Cotton planting has been completed throughout the province. Actual area planted approaches 9.5 million mu, of which the area of transplanted seedlings amounts to 4,688,000 mu for an all time annual high.

During this year's cotton planting season, first there were low temperatures and then drought, which was unfavorable for getting full stands of seedlings. However, thanks to all jurisdictions having adapted general methods to local circumstances in the use of various kinds of measures to combat drought and do planting, most cotton fields had full stands of plants. Overall, the seedling situation is good. Reportedly 80 percent of cotton fields in Xuzhou Prefecture have a full stand this year, growth is even, and development is early, which is a rarity. During April the seedling area in Huaiyin Prefecture stood at 70 percent, 500,000 mu larger than last year. In the three southern counties of Yancheng Prefecture, the seedling emergence situation is better than during 1978 and 1980, and almost as good as during 1979. In three northern counties, this year's seedling emergence is the best it has been during the past 3 years. The seedling emergence situation is not too good in coastal recalimed areas in Nantong Prefecture, and in the sandy soil areas of the west. In Tongzhong Prefecture, the situation approaches that of last year. In Xuzhou and Yangzhou prefectures, the transplanted area is large and the seedling situation is also quite good. Since early May temperatures have been fairly high, and this plus two or three rainfalls in most parts of the country has meant rapid growth for the cotton seedlings. The present problems are: In seacostal saline-alkaline soil areas and in the hilly silt soil areas of the west, cotton has not reached a full stand because of the tendency toward dryness. All sorts of insect pests have begun to cause damage. In some prefectures fusarium wilt has broken out, and the number of dead seedlings is serious. In the cotton regions, the broad masses of cadres and the people are giving close attention to field care during the seedling stage, striving for early growth and development.

9432
CSO: 4007/457

LOWERING OF PRODUCTION COSTS IN AGRICULTURE URGED

Nanjing XINHUA RIBAO in Chinese 18 May 81 p 2

[Article: "Increase in Grain Economic Benefits Is a Conspicuous Problem in Agriculture"]

[Text] A 1980 compilation from 21 farm product cost accounting pilot project production teams throughout the province shows high costs, large expenditures, and poor results from investment to be current conspicuous problems in agricultural production.

Last year Jiangsu province had disasters, which caused a drop in the output of cotton and grain. However, as a result of the establishment and perfection of various forms of a system of responsibility for production, and the beginning of serious attention to economic accounting, the benefits from agricultural production, though somewhat lower than during the bumper harvest year of 1979; were still higher than for previous years. In the case of grain, for example, figuring a uniform 0.80 yuan per worker per workday, and a uniform state procurement price, last year's profits amounted to 17.79 yuan per mu, or a profit of 3.38 jin per jin. However, the aforestated figures likewise show the economic benefits from grain production to be very low, costs high, expenditures large, and investment results poor. These are still conspicuous problems in current agricultural production. At a unified cost per unit of labor of 0.80 yuan, it is impossible to compensate laborers for the labor expended to produce agricultural goods. A substantial portion still require income from diversification and from family sideline occupations to make good the basic requirements in workers's livelihoods.

Apart from price factors, the main reasons for high costs for agricultural products and low economic benefits are, according to the situation in these pilot production teams, the following three: First low labor efficiency and a surplus labor force. Expenditures for human labor make up a substantial part of the cost of agricultural products, accounting for 47 percent of the cost of producing grain, 49 percent of the cost of producing edible oil, and 59 percent of the cost of producing cotton. Despite the great expenditure of labor, the labor productivity rate is not high. For every standard workday, only 19 jin of grain is produced, only 1.7 jin of cotton, and 7.5 jin of edible oil. Second, great losses and waste in expenditures for materials. Third, in the guidance of production in some units, a tendency toward subjectivism and a onesided seeking after high output exists.

Farm product costs are the final comprehensive reflection of all work done in agricultural production. A look at the experiences of the cost accounting pilot project production teams shows that if income is to be increased and costs decreased, not only must efforts be made at the outset, but attention must be given throughout the entire production process. Various forms of a system of responsibility for production process. Various forms of a system of responsibility for production must be instituted to arouse the initiative of workers and increase labor efficiency. There must be sensible use of natural resources and labor resources, and opportunities found for surplus labor in order to create more wealth for society. Earnest efforts must be made to simultaneously improve administration and management, production, and care.

9432
CSO: 4007/457

JIANGSU

METHANE GAS PRODUCTION FOR RURAL USE PROMOTED

Nanjing XINHUA RIBAO in Chinese 17 May 81 p 2

[Article by Provincial Office For Methane Gas Promotion: "Conscientiously Tackle Methane Gas to Promote Increased Agricultural Output"]

[Text] Methane gas endeavors have developed very rapidly during the past several years as a result of the serious efforts given it by leaders at all echelons throughout the province, the vigorous support given by all trades and industries, and the strenuous efforts of the broad masses of people. More than 700,000 methane pits have been constructed throughout the province, and more than 250 methane electric power generating stations have been built. In all communes and brigades where methane gas is being used, a surplus of firewood, and increase in the number of pigs and sheep has taken place. Fertilizer has increased and grain and cotton has increased; income has increased, and illnesses have decreased.

One example is the Dengta Brigade, Hewang Commune, in Lianshui County. This brigade had formerly been a notorously poor brigade with alkaline-saline soil and low output where the livelihood of the commune members was hard. Following methanization, the old state of affairs changed. The quantity of stalks and grasses returned to the fields increased gradually over the years and live hog production rapidly developed. Grain output rose year after year; consumption grain for commune members and distributed income showed remarkable average increases, and sanitary conditions also improved greatly. There were numerous reasons for these achievements, one of them being the production of methane.

The evidence of scientific experiments shows that for the same amount of rice or wheat straw, the heat energy utilization rate from the burning of gas produced by composting in methane pits is greater by between 50 and 80 percent than from the direct burning of solid rice and wheat straw. The organic fertilizer contaning nitrate, phosphate, and potash that is derived is more than 2.5 fold greater than hay ashes containing only phosphate. Organic fertilizer from an identical amount of human and animal excrement, crops stalks and stems, fallen leaves, and miscellaneous weeds and grasses, when composted in a tightly closed methane pit will have more than 10 perxent maximum. However, nitrate loss from an open-air toilet or an open pond will amount to more than 18 percent. Nitrogen loss from the high temperature manure heap will amount to more than 40 percent. Organic carbon loss from methane pits, open-air toilets, and open ponds is about 35 percent while the rate of loss from a high temperature manure heap is more than 45 percent. Therefore, composting in a methane pit not only makes full use of heat energy, but also increases the quality of fertilizer. Some communes and brigades also report that methane gas fertilizer functions in the prevention and control of diseases and insect pests on some crops as well.

In places where a good job has been done with methane gas, real benefits have accrued for production, and life has been easier, thus killing two birds with one stone, which the masses welcome. However, as a result of the influence of the leftist mentality and a desire for quick results, some places formerly tended to emphasize construction and slight management causing a low rate of methane gas pit completion and the occurrence of ailing and abandoned pits, which impaired the enthusiasm of some cadres and masses for operating methane gas pits. In pursuing the program for readjustment of the national economy and taking account of realities in Jiangsu province, earnest efforts will now be made in methane gas management work. There will be conscientious inspections and prompt repair and restoration of ailing and abandoned pits to make the most of existing methane pits. The management of methane gas requires, first of all, strengthening of leadership in methane gas work. Making methane gas is a wideranging and highly technical task. It is hoped that leaders at all levels will place it on their agendas and handle it as a major part of agricultural production, probing the real situation, investigating and studying, summarizing and spreading advanced representative experiences, promptly discovering problems, solving problems, adapting general methods to local situations, doing only what resources permit, and formulating plans for development of methane gas. Second, diligent implementation of the economic policy of methane gas. The making of methane gas involves a series of problems such as use of labor, use of land, of funds, and of materials in building methane gas pits, plus use of the fertilizer produced in making methane gas, and maintenance of the methane gas pits, etc. Each jurisdiction has to start from its own realities in making explicit regulations about these problems. In the use of the methane gas fertilizer, in particular, assurances must be given that the economic incomes commune members will not drop after human and animal excrement is put into the pits. Planning for use of fertilizer has to be strengthened to help commune members cultivate materials in order to get more fertilizer and prolific gas production so that everyone will be satisfied. Third, construction of a specialized corps for steady improvement in methane gas management levels. Methane gas quality requirements are fairly high, and building of pits requires specialized teams. Production teams must make ready fertilizer management personnel and methane gas technicians, maintain relative stability among these personnel and give them reasonable remuneration. In addition, there should be regular exchanges of experiences in the management of methane to help them raise their management levels. In addition the method of "cooperate maintenance of methane pits" used in Wansui Commune in Wujin County can be promoted for use. Fourth, popularization of knowledge about methane so that management work is applied where needed. When countless households use methane, only by arousing the masses can methane gas be truly managed well.

Management while building. While managing methane, places where methane is not being made or where not many methane pits have been built should take firmly in hand the step building of methane pits. Though more than 18,000 production teams in Jiangsu Province have become substantially methanized, they account for only 6.5 percent of the total number of production teams, and there is great imbalance. Each jurisdiction should diligently put into effect the duties handed down by the provincial government, do unified planning, train technical forces, set up pilot projects, gradually spread derived experiences, not try to do everything at once, and maintain quality and quantity. Communes and production brigades where conditions permit should actively develop small methane electricity generation and multiple uses of methane gas, further developing new energy sources for rural villages to lighten the load on the country. Meanwhile, there should be intensification of scientific research work to gradually solve new problems in making methane gas, such as production of methane gas fertilizer, multiple utilization of methane gas, the plant protection function of methane gas, etc. Only in this way can Jiangsu Province's gas endeavors develop more healthily.

9432
CSO: 4007/457

WUSIN COUNTY MOBILIZES TO BUILD METHANE GAS PITS

Nanjing XINHUA RIBAO in Chinese 10 May 81 p 1

[Article: "Attention by the Leadership, Implementation of Policy, Strengthening of Management; Wujin County Has Built 100,000 Methane Pits"]

[Text] Wujin County mobilized the masses to build methane gas and achieved welcomed results. From 1974 to the end of last year, this county built a total of over 100,000 methane pits, 44 small methane power stations, and 2,818 production teams basically had methane facilities. After methane gas projects were built, the broad masses of commune members conserved the burning of grass, developed hog raising, increased the amount of grass returned to the fields, improved the soil, improved the life of the masses and promoted increases in agricultural production. The entire county already has 30 small methane power stations installed and in operation, generating over 44,300 kilowatt-hours of electricity and conserving a total of over 7,500 kilograms of disel oil. Fourteen other power stations are being installed.

Wujin County achieves such good results in building methane gas projects mainly because the leadership of each level paid attention. From the county down to each region and commune, there are methane project offices; some commune brigades have also assigned a special staff to manage methane projects or a supervisor of fertilizer gas. In this way, there is a methane gas management cadre and technical team from top to bottom, there are people to grasp the work, there are people to manage fertilizer gas, there are people to take care of quality, and methane construction has been implemented in the localities. At the same time, the implementation of policy has been tightly grasped. The enthusiasm of all aspects has been mobilized, and the gain of methane has been fully developed.

9296
CSO: 4007/427

NEW SUPERIOR POTATO VARIETY REPLACES OLD ONE

Nanjing XINHUA RIBAO in Chinese 27 Apr 81 p 1

[Article: "New Variety of Sweet Potato Reported"]

[Excerpt] The variety of potato "sheng li bai hao" which has been planted for many years is now rapidly being replaced by a new potato variety bred domestically.

This new potato variety is the "xu shu yi ba" bred and cultivated by our nation's famous potato expert, Deputy Director Sheng Jialian [4141 1367 1670] of the Xuzhou Regional Agricultural Science Institute and his assistants after 4 years of determination, screening and selection.

"Xu shu yi ba" defeated "sheng li bai hao" with its outstanding superior qualities of stable, high yields, good all round characteristics and in particular its high resistance to root rot disease. Between 1975 and 1979, "xu shu yi ba" and "sheng li bai hao" were compared experimentally, and the average yields of fresh and dried potatoes of "xu shu yi ba" surpassed that of "sheng li bai hao" by 22.1 percent and the yield of dried potatioe was higher by 39.8 percent. The two were also compared experimentally in regions affected by root rot disease. The yields of fresh potatoes and dried potatoes of "xu shu yi ba" were all higher than those of "sheng li bai hao" by two to five times. After "xu shu yi ba" was successfully bred in 1976 at the Xuzhou Regional Agricultural Science Institute, it was popularized and planted over large areas in Jiangsu, Shandong, Anhui, Henan, Hebei, Beijing and Hubei within only 3 or 4 years. In 1980, its planting area had already reached over 7 million mu.

9296
CSO: 4007/427

'STEPPED-UP PREVENTION, CONTROL' OF WHEAT DISEASE URGED

Nanjing XINHUA RIBAO in Chinese 19 Apr 81 p 1

[Article: "Stepped-Up Prevention and Control of Damage to the Three Wheats By Diseases and Insects"]

[Text] According to forecasts by the provincial agricultural crop disease and insect forecast station, powdery mildew of wheat has occurred on a widespread basis in our province, and it is becoming more serious. Powdery mildew of wheat crops is strongly adaptive to temperature and humidity. In the fields, the wheat plants are dense, especially when too much nitrogen fertilizers have been applied, late developing fields have been seriously affected by disease. This year, winter development of the three wheat crops has been poor, spring development has been fast, the quality of wheat seedlings was poor and resistance to adverse conditions was weak, providing favorable conditions for powdery mildew to attack. At present, prevention and control are urgently required in high-yield wheat fields that have already been affected by the disease and in seriously affected fields. According to other reports by the localities, cereal scab and red spider mites of the three wheats have already occurred and caused damage, affecting the normal growth of the three wheat crops. To realize bumper harvests this summer, each locality throughout the province has already actively taken action, organized forces and taken out the chemicals to launch sudden prevention and control of the insects.

9296
CSO: 4007/427

JIANGSU

GRAIN SUBSTITUTES FOR HOG FEED URGED

Nanjing XINHUA RIBAO in Chinese 14 Mar 81 p 2

[Article: "Use of Small Amounts of Feed to Produce a Fairly Large Number of Hogs Is Proposal of Some Scientists and Technicians at the Nanjing Institute of Agriculture and the Jiangsu Provincial Academy of Agriculture"]

[Text] A group of scientists and technicians at the Nanging Institute of Agriculture and the Jiangsu Provincial Academy of Agriculture believe a great untapped potential exists in China for using relatively little feed to produce a relatively large number of hogs in an increase of the return rate on feed. They said that in many countries today where pigs are raised, for each additional jin of weight, 3 jin of balanced feed is required. In China, however, in some places where hogs are raised, for every jin of additional weight, more than 4 jin of concentrated feed is required, and sometimes as much as 5 to 8 jin.

They noted that the greatest problems with feed in the farming regions of China today are everybody preparing feed in his own way, feeding of whatever happens to be available, unbalanced nutrition, and both a shortage of feed and a waste of feed. In this connection, they proposed the following:

Efforts to develop balanced feeds. Formulation of feeds with consideration being given to different stages of growth and different nutritional needs. Where this cannot be done for the time being, local feed resources, such as green feed for the most part, should be used to blend a certain quantity of feed, particularly using protein feeds for mixing into various kinds of feeds. This is more effective than feeding whatever happens to be available, and not caring about anything except whether the animals are full. The First Production Team in Dongfeng Brigade, Changshu County made a comparison of pigs fed with blended feed and with conventional feed. For an average weight gain of 1 jin, only 2.56 jin of the former concentrated feed and 0.83 jin of green feed was needed. By contrast, 4 jin of the latter concentrated feed and 1.52 jin of green feed was required.

Slight use or no use at all of powdered rice bran to feed pigs. The principal constituent of rice bran is coarse fiber, which is not only hard to digest, but also inhibits absorption by the animals of calcium and phosphorous, and other nutrients. Experiments conducted at Beijing Agricultural University in the feeding of hogs with rice bran showed that only when the feed given hogs every day was concentrated feed with rice bran not exceeding 5 percent, did it have value. However, at some places in Jiangsu Province, 40 percent of hog feed consists of 40 to 70 percent hull meal and the remaining part rice bran. In Jiangsu Province, annually 400,000 tons of pig feed consisting of 40 to 70 percent hull meal and the rest rice bran is processed, consuming 12 million kilowatt hours of electricity, at a processing expenditure of about 15 million yuan. If the amount for the entire country were calculated, it would be much greater. This is certainly a waste.

Advocacy of comprehensive use of cake residues and green feed. China annually produces more than 4 billion jin of bean and peanut cake, and more than 5 billion jin of cotton seed and rapeseed cake. The protein content of these cakes is more than three times higher than that of cereal grains such as wheat, barley, and naked barley. If used first as a feed and then spread on the fields, the utilization rate of organic nitrogen will be increased from the 30 percent rate if used only on the fields to 90 percent. The utilization rate for green manure can also be increased by this method.

Change from the uneconomical method of using grain instead of feed. Two years ago, the feed grain retained by communes and brigades and grain provided through award sales by the state in Jiangsu Province totaled 7.1 billion jin and accounted for 14 percent of that year's total grain output, or the output of 15 million mu of cropland. If, on the basis of the nutritional needs of livestock and fowl, a planned portion of cultivated land had been devoted to the growing of feed crops, it would have been possible to produce much more feed on the same area of land. This would also have benefited redistribution of the workforce in rotational cropping, would have helped solve the conflict between soil use and soil nurture, and feed production and grain production would have promoted each other.

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DIVERSIFICATION PROMOTED IN POOR BRIGADES--In a readjustment of the direction in which funds for the support of rural communes are used, Jiangsu Province will use 80 percent of such funds this year to help poor brigades diversify and expand output of commodities. Since 1977, Jiangsu Province has annually used about 60 million yuan for the support of rural people's communes. Most of these funds have been used to help poor brigades buy farm machinery and implements, to buy farm boats, to build small drainage and irrigation stations, and such capital construction of agriculture. Though this has played a definite role in changing backward conditions in poor brigades, economic benefits have not met expectations adequately. In view of local realities in Gao County last year, for example, 1.84 million yuan of 2.02 million yuan of state funds for the support of rural communes were used to help poor brigades raise silkworms, grow rabbits, and develop mushroom production as "quick results" sideline industries. As a result, a net profit of 2.46 million yuan was earned for the year. Commune members increased their incomes, and the collective increased accumulations and strengthened its capacity to expand further production. After summarization and comparison, Jiangsu Province concluded that use of these funds to help poor brigades develop diversified projects that yielded benefits in the same year as funds were invested was better than using them in capital construction. This both enlivened the economy, helped increased benefits from the use of capital, and helped poor brigades rapidly get rid of their impoverished circumstances. At the present time, all echelons of the government of Jiangsu are organizing supply and marketing, financial, and banking departments to participate in special work teams doing this kind of work. All locales are working on production plans to help poor brigades develop diversification, and throughout the province investment funds to help rural people's communes have been allocated in one place after another. [Text] [Nanjing XINHUA RIBAO in Chinese 18 Apr 81 p 1] [9432]

PISCICULTURE CENTER--The Wuxi ASEAN-Pacific Regional Comprehensive Pisciculture Center, co-sponsored by China and the United Nations, opened in Wuxi, Jiangsu 22 June. Xiao Peng, director of the state bureau of aquatic prodcuts, addressed the opening ceremony. The center provides training for aquatic technical personnel from Asian and Pacific countries and conducts pisciculture research and technical exchanges. [Nanjing Jiangsu Provincial Service in Mandarin 2300 GMT 22 Jun 81 OW]

RAPESEED--Despite unfavorable weather conditions, Zhejiang Prefecture in Jiangsu has reaped a bumper harvest of oil-bearing crops this year. The total rapeseed output this year has exceeded 100 million jin, or 80 percent higher than last year. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 28 Jun 81 OW]

BUMPER RAPE HARVEST--Jiangsu Province has reaped an extraordinary bumper harvest from its more than 3.8 million mu of rape. The total output of rapeseeds exceeded 6.78 million dan, showing an increase of 67 percent over that in 1980 and an increase of more than 30 percent over than in 1979, also a bumper year for rape harvest. The total output in Xuzhou, Huaiyin and Yangzhou prefectures all doubled that in 1980, and the total output in Suzhou Prefecture exceeded 2 million dan for the first time. [Nanjing Jingsu Provincial Service in Mandarin 1100 GMT 30 Jun 81 OW]

JIANGSU RAINFALL--In the 8 days from 23 June, when the province entered its rainy season, to 30 June, the average rainfall in the province ranged from 80 to 100 mm. In Jinhu, Xinyi, Nantong and Rudong counties, the average rainfall ranged from 237 to 287 mm. Except for Xuzhou, Zhenjiang and Nanjing, drought in the province has been relieved. With forecasts of continuing rain in the province, the provincial people's government has called on all localities to prevent floods and waterlogging. [Nanjing Jiangsu Provincial Service in Mandarin 2300 GMT 30 Jun 81 OW]

WATERLOGGING--Jiangsu's Nantong Prefecture has been hit by torrential rains since 24 June, with precipitation reaching between 200 and 300 mm. As a result the water level of inland rivers has risen and waterlogging has been reported on nearly 1 million mu of farmland with cotton and other crops most seriously affected. In order to reap a bumper harvest of grains and other crops, some 300,000 cadres and commune members are busily engaged in fighting the waterlogging. [Nanjing Jingsu Provincial Service in Mandarin 2300 GMT 29 Jun 81 OW]

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JIANGXI RAINFALL--Rain fell on most areas of Jiangxi Province recently generally alleviating drought conditions. During the 3 days from 27-29 June, total rainfall recorded in Jiujiang, Yichun, Shangrao and Jian prefectures as well as in northern Fuzhou Prefecture ranged from 60 mm to 90 mm. The 3-day rainfall in Xiushui and 13 other counties exceeded 100 mm. The continuous rain in the 3 days greatly relieved the province's 5 million mu of drought-stricken farmland. The weather department predicts more heavy rain for northern Jiangxi in July and cautions against floods and waterlogging. [OW091411 Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 1 Jul 81]

CSO: 4007/507

BRIEFS

RAINFALL--According to statistics compiled by the Jilin provincial flood control center, precipitation from October 1980 to the end of June 1o81 was 338.7 mm, surpassing that of the corresponding rainy years' period by 106 mm and the corresponding 1980 period by 54 mm. Precipitation in July will be heavier than usual. The water level of reservoirs and rivers is much higher than usual. As of 1 July, nine large reservoirs had accumulated 10.7 billion cubic meters of water, a 2.4 billion cubic meter increase over 1980's figure. Therefore, the provincial flood control center urges the people throughout the province to pay great attention to flood prevention work. [SK100628 Changchun Jilin Provincial Service in Mandarin 1100 GMT 9 Jul 81] Jilin Province had average precipitation of 34.4 mm 3-4 July. Though the drought has been alleviated in most areas, some localities are suffering from flood and waterlogging. The 6 July Jilin RIBAO frontpages a commentator's article, calling on the people to prepare for floods by building dams, clearing away obstacles on rivers and maintaining sluice gates. [Changchun Jilin Provincial Service in Mandarin 2200 GMT 5 Jul 81 SK]

CSO: 4007/507

LIAONING

EXPANDED PADDY RICE PRODUCTION ENVISIONED

Luda LIAONING NONGYE KEXUE [LIAONING AGRICULTURAL SCIENCES] in Chinese No 2, 15 Apr 81 pp 40-42

[Article by Jia Enming [6328 1869 2494], Grains and Oils Department, Liaoning Provinical Bureau of Agriculture: "Proposals for Expansion of Paddy Rice Production in Liaoning Province"]

[Text] 1. Importance and Urgency of Expanding Rice Production

Rice is a grain that people are fond of eating. It also produces high yields and high earnings. For these reasons, expansion of rice production relates to the vital interests of the broad masses of people in cities and in the countryside of the province.

1. Expansion of rice production is necessary to increase in grain output. Rice is a high yield crop. Statistics show that in 1979 rice yields for the province averaged 755 jin per mu, 25.8 percent and 46 percent higher respectively that corn yields of 602 jin per mu and gaoliang yields of 517 jin per mu. In Liaoning Province, in particular, many of the ricefields occupy lowlying, easily waterlogged, alkaline-saline land. Harvests from dryland fields are poor, but consistently high output could be had from a change to the growing of paddy rice.

2. Expansion of rice output is necessary to increase income and to make money in order to become wealthy. Paddy rice output is high and output value is high, so even though costs are also fairly high, net earnings per unit of area still greatly exceed those from other dryland grain crops. A Provincial Grain Bureau survey done at selected sites throughout the province in 1979 shows that new earnings per mu were 11.17 yuan for gaoliang, 18.48 yuan for corn, 6.04 yuan for millet, 1.29 yuan for soybeans, and 16.15 yuan for peanuts, while net earnings from paddy rice far surpassed those from the aforementioned crops at 67.25 yuan per mu.

3. Expansion of paddy rice production is necessary in order to improve the life of the people. As socialist construction expands and the people's living standards increase year by year, the quantity of flour and rice required becomes greater and greater. More particularly, the amount of grain consumed in rural villages increases year by year, so unless paddy rice production is actively expanded, supplies of flour and rice for the cities and the countryside will be uncertain.

2. Liaoning Province's Potential for Expansion of Paddy Rice Production

Rice production in Liaoning Province has increased rapidly ever since the founding of the Chinese People's Republic. In 1949, the area sown to rice throughout the province amounted to 968,000 mu, and yields averaged 275 jin per mu. Total output of paddy was 260 million jin. By 1979 the rice growing area had expanded to 5.67 million, a nearly sevenfold increase over 1949, and total output reached 4.23 billion jin, nearly a 15 fold increase over 1949. Does this mean that rice production in Liaoning Province has already peaked? Is it possible to expand further from the existing foundation? The answers must be affirmative.

1. The Growing Area Can Be Further Expanded

(1) Northeastern and Northern Region: This includes the 13 counties in Benxi, Fushun, and Tieling prefectures. In these areas, the wetland area is more than 1.1 million mu less than the all-time high. A 1979 survey showed this drop to have done blindly to a large extent. In the two counties of Qingyuan and Xinbin, for instance, 1.8 billion cubic meters of water is available of which only 300 million cubic meters or one-sixth is being used. Another example is Kanping and Faku counties where there is more than 600,000 mu of lowlying saline-alkaline land, 19 major and minor streams, and where 48 medium size and small reservoirs have been built with a storage capacity of 460 million cubic meters of water. Existing conditions can support development of more than 400,000 mu of paddy rice, yet the current wetland area is less than 40,000 mu, a use of less than one-tenth. A survey done in Zhangwu County, Fuxin Prefecture is also very exciting. Water resources and soil conditions there provide potential for a 200,000 mu expansion in the paddy rice area.

(2) Western Region. In the river basins of the Daling and Xiaoling rivers, subterranean water resources are substantial. An estimate made on the basis of a joint survey of agriculture in the province conducted in 1979 by the Second Water Conservancy Bureau and the Provincial Saline-alkaline Land Institute showed that if the full potential of subterranean water were to be tapped in Jinxian, Beizhen, and Heishan counties, the paddy rice growing area could be expanded by from 200,000 to 300,000 mu at least.

(3) Southeastern Coastal Region: With the construction of the Yalu River water diversion project and the Biliu River water storage project, as well as other small farmland water conservancy projects, the saline-alkaline coastal wastelands in Zhuanghe, Donggou, and Xinjin counties can be gradually developed into wetlands, and the area for development will be no less than 400,000 to 500,000 mu.

(4) Central Region: Saline-alkaline wastelands in the lower reaches of the Liao River may be developed for use, and there is untapped potential in water resources there as well. Six large reservoirs in the upper reaches of the Liaohuntai can store more than 3 billion cubic meters of water, but the amount in storage in recent years has been only somewhat more than 1 billion cubic meters, or less than half than in normal years. At the present time, the somewhat more than 1 billion cubic meter of water is used to irrigate an area of about 3.5 million mu, but if the amount of water stored in these reservoirs were relatively close to that of normal years, a potential would exist in this basin for expansion of the paddy rice area.

In addition, the Provincial Water Conservancy Bureau has plans for the construction before 1985 of seven large and medium size reservoirs with a storage capacity of 2.1 billion cubic meters in Dalian, Fuxin, and Tieling prefectures, and to build a dam at one site on the Sancha River, which will increase the irrigated area by 100,000 mu. New construction of a Liao River diversion project will increase the irrigated area by 500,000 mu.

A summary of the foregoing shows that conditions exist in Liaoning Province for expansion of the paddy rice growing area to 8 million mu before 1990. If it is possible to work from this foundation to tap water resources and promote techniques for the growing of paddy rice at a saving in water, it is entirely possible that the paddy rice area throughout the province can be further expanded.

2. Yields Per Unit of Area Can Continue To Climb

In 1979 the province's rice yields averaged 755 jin per mu. Thirty-one counties with a ricefield area totaling 1.1 million mu had yields averaging only 518 jin. Moreover, in 22 moderately producing counties, numerous low output communes and brigades had yields of only between 500 and 600 jin per mu. Over a 29 year period, per unit yields for the entire province have averaged incremental annual increases averaging 2.4 percent. Figuring a 1.2 percent future rate of increase, by 1990 per unit yields of paddy can increase to 850 jin per mu for the entire province. This shows a great potential for increasing per unit yields. Postulating an 8 million mu paddy rice growing area for the province in 1990, with per unit yields of 850 jin per mu, total paddy output will reach 6.8 billion jin. Population of the province totals 34 million, which means an average 200 jin per capita of paddy, thus greatly increasing the supply of rice. Were one half of this paddy to be sold on international markets in exchange for wheat, figuring 1 jin of rice as exchangeable for 2.5 jin of wheat, 8.5 million jin of wheat could be obtained. Add this to the remaining half of 3.4 billion jin of paddy and this would mean production for the country of 11.9 billion jin of rice and wheat flour annually. This amounts to half the present total grain output for the province, or an average 350 jin of rice and wheat flour per capita. This is of extraordinary importance and significance for the building of socialism in Liaoning Province and for daily improvement in the standard of living of the people.

3. Several Problems in Improving Rice Culture Technology

1. The Problem of Leveling the Land, Improving the Irrigation and Drainage Ditch System, and Use and Nurture of the Land. The major efforts made following the 1960's in building standard strip fields, in leveling the fields, and in improving the drainage and irrigation ditch system played a major part in increasing rice output. At the present time, one-third (about 2 million mu) of the ricefields in the province are not up to standards, the land not being level and the irrigation and drainage system irrational. In the future, these problems must be gradually solved year by year.

Rice output is high, depleting the fertility of the soil, and this plus the year after year continuous cropping system in Liaoning Province, and scant applications of fertilizer means rather serious reduction in soil fertility. Consequently, revival and increase in soil fertility is a fundamental issue for maintenance of continued increases in rice output. In South China, in addition to application of large quantities of agricultural fertilizer as a means of reviving the fertility of the land, the growing of green manure is customary. In Japan, diverse methods for improving the soil, increasing its organic content, and improving the fertility of the land are employed such as returning rice straw to the fields, mixing straw ashes with fertilizer, promoting use of inorganic fertilizer such as silicate and use of farmyard manure and urine. By making use of domestic and foreign experiences, Liaoning Province should henceforth vigorously develop use of abundant straw ash resources, mixing organic material into the fertilizer, while at the same time returning rice straw to the fields, and increasing applications of farmyard manure in order to increase the organic content of the soil to solve problems in the fertility of Liaoning Province's ricefields.

2. The Problem of Replacing and Popularizing Superior Varieties. The key to mastery over seed work lies in establishment and perfection of a superior varieties breeding system, formulation of scientific superior variety breeding and promotion procedures, planned, measured, year by year replacement and popularization of superior varieties, and guarding against blind promotion that creates production losses. In addition to active breeding of superior varieties on the basis of production needs by scientific research units, counties, communes, and production teams should establish appropriate superior variety propagation fields for echelon by echelon propagation, and echelon by echelon promotion. Of special importance is the intensification of superior variety rejuvenation and purification work whereby identical varieties can be completely replaced once every 3 to 5 years in order to revive their specie characteristics and constantly take advantage of the role of superior varieties for increased yields.

Proper matching of varieties with different growth periods is another problem deserving attention. The method for matching must adhere to use of medium maturing varieties for the most part, with suitable matching of early and late maturing varieties, using the frost free period to the maximum extent possible to win high output, and assuring that all of the rice will be able to form panicles during the local safe season, thereby realizing all around consistently high output.

3. The Problem of Factorization of Seedling Propagation and Mechanization of Seedling Transplanting. The factorization of seedling propagation would use artificial means to control nature, thereby attaining the goal of growing sturdy seedlings. Additionally, it would have the good points of conserving labor, conserving water, and conserving seeds. Mechanization of seedling transplanting would reduce the intensity of labor and increase efficiency. In Japan, all rice production has factorized seedling propagation, and the area of mechanization of seedling transplanting has also reached more than 80 percent. These measures require great investment and high technological requirements, which Liaoning Province is as yet unable to promote in general use; it is, nevertheless, the direction toward which the province's rice production should strive. In order to do this, right now experiments, exploration, and summarization of experiences should be done to prepare conditions for future across-the-board renovation of rice production technology.

4. The Problem of Fertilization, Weed Elimination and Irrigation Management. During the past several years, we have had numerous beneficial experiences in this regard. In fertilization, we have moved from the past use of nitrogenous fertilizer alone toward gradual use of a mixture of nitrogenous and phosphate fertilizers, from fertilizing the surface to gradual deep fertilization with base fertilizer, and toward spreading of fertilizer before transplanting and fertilizing the entire surface of the fields. In the realm of the elimination of weeds, development has gone from the methods of getting rid of weeks of the past, which used manpower and animals, to use

of herbicides to eliminate weeds over wide areas. Now, on seedling fields and principal fields alike, and no matter the kinds of weeds, there is a different herbicide and a different method of getting rid of weeds. Irrigation methods, which formerly included deep water and long running water irrigation have been changed to water conservation and intermittent irrigation, which have both conserved use of water and have benefitted increased rice output. Improvements in the above methods has greatly increased the quality of field care and work efficiency, and have played a major role in all around improvement in rice output levels. Further summarization and promotion of these effective management methods must be done in the future to perfect them further and make them more advanced, and to promote them for greater general use to assure steady increase in rice output.

4. Other Problems in Expansion of Rice Production

In the history of development of rice in Liaoning Province, several times there have been rather large fluctuations. One of the main reasons for this has been emphasis on output no matter expenditures, so though per unit yields have increased somewhat, costs rose even faster, with the result that the peasants derived no real benefits from growing rice, their enthusiasm suffered, and the growing area dropped drastically several times. Taking advantage of the lessons of the past, future expansion of rice production must give special attention to the following several aspects.

1. Increases in Yields Per Unit of Area. At the present time, in the rice growing areas of Liaoning Province, a great disparity exists between high and low per unit yields, the highest exceeding 1000 jin, and the lowest being 400 to 500 jin, while, in general, there is little difference in expenses per mu for wetland production. Thus, the higher the per unit yield, the relatively lower the production cost per jin of paddy, and the greater the earnings. Therefore, improvements in rice culture techniques and vigorous increase in per unit yields is still the direction for constant efforts in rice production. In Liaoning Province, in particular, where cultivated land is relatively little, increase in per unit yields is of greater special significance.

2. Increase in Labor Productivity Rate. By labor productivity rate is meant the quantity of grain that can be produced for every member of the workforce or every hour of work invested. Currently, Liaoning Province's rice growing areas use 20 to 25 people per year per mu, between 3 and 4 jin of paddy being produced for every man hour worked. In Japan, however, 50 man hours per mu is expended in the rice fields to produce 15 jin of paddy per mu. The difference between the two is great. The principal reason is backward technological methods, and much hand labor. Consequently, henceforth, we must adopt modern, advanced techniques and scientific culturing and management methods, such as mechanization, chemicalization, and reduction in the amount of hand work in the fields to increase the labor productivity rate.

3. Lowering Production Costs. Lowering of production costs is not the passive lowering of production costs per unit of area, but lowering production costs per jin of paddy. Therefore, the realities of different areas and even different fields must be the starting point for establishing sensible expense quotas. Scientific analysis of production methods being promoted must be done, and for every measure

used, it should be possible to fully satisfy the biological requirements in the rice growing process. Right now the disparity in production costs per jin of catty is fairly great from one place to another, generally from about 0.12 yuan to 0.15 yuan. In some units where administration and management are fairly good, such as in the Zhongyangtun Production Brigade at Rongxing Farm in Dawa County, production costs are only from 0.06 to 0.07 yuan per jin of paddy. This shows that a great potential exists for lowering of production costs.

4. Increase in Commodity Rate. As compared with other crops, the commodity rate for rice already approaches 50 percent of total output. For dryland crops it averages less than 20 percent. This is a major reason why the income of rice region people is higher than in dryland areas. As rice production costs gradually decline and the yield per unit and labor productivity rates rise further, the quantity of rice available as commodity rice will greatly increase, and rice farmer income will see new breakthroughs. It may be imagined that under these circumstances, both rice output and development of the national economy will evidence rather great future identicalness. The earnings of the state, the collective, and individuals will more readily attain uniformity. In this way, a new situation will appear in rice production in Liaoning Province.

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BRIEFS

RAINFALL--According to a Shenyang municipal central weather station report, Liaoning Province has had rainfall since 3 July. Precipitation throughout the province, ranges from 10 to 150 mm. Rainfall will continue. This has relieved the drought and helped crop production. [SK050844 Shenyang Liaoning Provincial Service in Mandarin 1100 GMT 4 Jul 81]

SMALL ENTERPRISES--Commune and brigade-run enterprises in Shenyang Municipality, Liaoning Province, have made good progress in the midst of readjustment. By the end of June, the output of the city's commune and brigade-run enterprises had reached 196 million yuan, fulfilling 54.2 percent of the annual output plan and registering an increase of 19 million yuan over the corresponding 1980 period. [SK061210 Shenyang Liaoning Provincial Service in Mandarin 1100 GMT 6 Jul 81]

CSO: 4007/507

BRIEFS

DAIRY PRODUCTION--Nei Monggol Autonomous Region has achieved rapid development in dairy production. In the first 5 months of 1981, regional dairy products output came to 1,096 tons, surpassing that of the corresponding 1980 period by 77 percent. [SK020808 Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 28 Jun 81]

CSO: 4007/507

BRIEFS

WHEAT OUTPUT--By 29 June, Tai'an Prefecture had delivered 276 million jin of wheat to warehouses, an increase of 140 million jin over the corresponding 1980 period, overfulfilling the summer grain procurement plan by 16 million jin. Despite a 180,000 mu reduction in wheat acreage, the prefecture's total wheat output increased 10 percent compared with the 1980 figure. The per-mu yield of the prefecture's 3.4 million mu of wheatfields was over 400 jin in 1981. Wenshang County's wheat output increased by 14.3 million jin in 1981 although its wheat acreage was reduced by 26,000 mu compared with 1980. The per-mu yield of the county's 365,000 mu of wheatfields was 420 jin in 1981. [Jinan Shandong Provincial Service in Mandarin 2300 GMT 3 Jul 81 SK]

COTTON PRODUCTION--Shandong Province's Liaocheng Prefecture handed over some 3 million dan of cotton to the state in 1980. In the first 7 months of this year, the prefecture's 2.9 million mu of cotton is growing better than in 1980 in spite of a serious drought. [Jinan Shandong Provincial Service in Mandarin 2300 GMT 6 Jul 81 SK]

WEIFANG WHEAT OUTPUT--Weifang Prefecture, Shandong Province, has reaped a bumper harvest on 7.5 million mu of wheatfields. In 1981, both the total and per-unit wheat yields have increased 10 percent over 1980. Pingdu County has marketed some 100 million jin of wheat. [Jinan Shandong Provincial Service in Mandarin 2300 GMT 7 Jul 81 SK]

WATER CONSERVANCY--Since the founding of the PRC, Shandong Province has harnessed Yi, Shu, Wen, Si, Tuhai, Majia and 25 other rivers, repaired dikes and built 175 large and medium-sized reservoirs in mountainous areas, greatly increasing its flood control capacity. It has also built many farmland improvement projects to expand irrigated farmlands. Irrigated farmland acreage has increased from 3.7 million mu in the early post-liberation period to 66 million mu today. [SK060830 Jinan Shandong Provincial Service in Mandarin 2300 GMT 5 Jul 81]

CSO: 4007/507

BRIEFS

BUMPER SPRING HARVEST--Sichuan Province reaped a bumper harvest of spring-harvested crops, grain and oil-bearing crops this year. Although the areas sown to grain this year were some 2.5 million mu less than last year, total output of grain this year was still able to remain at last year's level. The areas sown to rapeseeds this year were larger than last year, the per mu yield increased and the total output was a record. According to statistics, by the beginning of June, the province had transplanted early and mid-season rice on 42 million mu and the areas sown to superior seeds account for about 85 percent of the total areas. The province had transplanted hybrid rice on 12 million mu. The province estimates that early and mid-season rice can be transplanted on 45.9 million mu this year, some 1.5 million mu larger than last year. The province had sown maize on 23.6 million mu, accounting for 98 percent of the plan. It is estimated that maize can be transplanted on 24.5 million mu, 500,000 mu more than last year. The province had transplanted sweet potatoes on about 8 million mu. It is estimated that transplanting of sweet potatoes can be basically completed before 15 June. Transplanting of industrial crops, such as cotton, peanuts, sugarcane, tobacco and ramie, has been completed. All places are now stepping up spring-sown crop field management. [HK030933 Chengdu Sichuan Provincial Service in Mandarin 2300 GMT 11 Jun 81]

IMPORTED FERTILIZER INSTALLATION--The large chemical fertilizer installation of the Sichuan chemical works which was imported from Japan was put into operation on 22 June 1976. Since the fertilizer installation began operation, it has produced 1.51 million metric tons of synthetic ammonia, an average of some 300,000 metric tons a year, exceeding its designed capacity. The total amount of profit which was earned with this installation within 5 years and was submitted to the state was equal to 145 percent of the total amount of investment in this installation. With the synthetic ammonia which was produced by this installation, 2.18 million metric tons of urea were produced within 5 years. The highest annual output of synthetic ammonia from this installation was 347,000 metric tons. [HK030933 Chengdu Sichuan Provincial Service in Mandarin 2300 GMT 12 Jun 81]

CSO: 4007/507

BRIEFS

AGRICULTURAL CIRCULAR--The Xizang regional antinatural disasters leadership group recently issued a circular on combating natural disasters and on agricultural and animal husbandry production. The circular demanded that the region step up preparations against natural disasters, protect plants from insect pests damage, strengthen administration of livestock and establish prefectural, municipal and county antinatural disasters leadership groups as quickly as possible. [HK230303 Lhasa Xizang Regional Service in Mandarin 1130 GMT 4 Jun 81]

CSO: 4007/507

BRIEFS

ECONOMIC CONSTRUCTION--Under the guidance of the party, Wenshan Autonomous Prefecture has made great improvements in economic construction over the past 30 years. According to statistics: grain production in 1979 and 1980 exceeded 1 billion, which showed an increase of 74.9 percent compared with the figure at the initial stage after liberation. Comparing 1980 with the initial stage after liberation, draught animals increased by 153 percent, pigs by 339 percent, goats by 320 percent, and fish by 440 percent. Total agricultural income has increased by 125 percent. There are also developments in local industries. There are, at present, 109 state-owned enterprises, including electronics, machineries, metallurgy, textile and other industries. Before liberation, there was only 1 small generator, at present, there are 731 electric powerplants. Of all the communes and brigades, 67.5 percent have an electric supply. Science and technology, cultural, educational, public health and other enterprises also have enjoyed speedy development. Seven natural science societies have been established, and there are 83 secondary schools, 9 secondary technical schools and 6,161 primary schools. [HK110730 Kunming Yunnan Provincial Service in Mandarin 1100 GMT 31 Jun 81]

CSO: 4007/307

BRIEFS

HIGH-YIELD RAPESEED--A high-yielding rapeseed species cultivated in Zhenhai County, Zhejiang, was awarded first prize for scientifi and technical achievement in Zhejiang this year. The new rapeseed species is early-ripening, has high disease-resistance capacility and yields a high output. The county has reaped a steadily high output from the 86,000 mu of rapeseed it has planted this year. Because of adoption of this good species, the county's rapeseed output has increased by 6 million dan over the past 3 years. At present this rapeseed species has been popularized on 640,000 my of rapeseed acreage in Ningbo, Shaoxing and Zhoushan areas. [Hangzhou Zhejiang Provincial Service in Mandarin 0400 GMT 28 Jun 81 OW]

WATERMELONS--Zhejiang is anticipating a bumper harvest of watermelons this summer. This year Zhejiang has over 65,000 mu of watermelons and total output is expected to exceed 2 million dan. [Hangzhou Zhejiang Provincial Service in Mandarin 1040 GMT 22 Jun 81 OW]

GRAIN PRODUCTION--The Zhejiang Provincial People's Government held a forum on 27 June to discuss late-stage management of early rice, preparations for late rice sowing and efforts to reap a good grain harvest in 1981. The forum was attended by agrotechnicians and responsible persons of county and commune party committees. Vice Governor Yuan Fanglie spoke at the forum on the importance of grain production; he also called for the development of diversified economy. [Hangzhou Zhejiang Provincial Service in Mandarin 1040 GMT 27 Jun 81 OW]

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II. PUBLICATIONS

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[Text] Scientific Reports

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SOME RECENT, IMPENDING CHANGES IN STATE FARMS SKETCHED

Hong Kong CHING-CHI TAO-PAO in Chinese 29 Apr 81 p 7

[Article by Liu Xiangqi [0491 4161 7871]: "How To Do a Good Job of State Farm Readjustment; Notes Taken at Conference of Directors of State Farms and Land Reclamation Departments and Bureaus"]

[Text] The Conference of Directors of State Farms and Land Reclamation Departments and Bureaus commenced on 20 February and concluded on 5 March 1981. The conference summarized the lessons of 30 years of experience on the agriculture and land reclamation front as well as the situation pertaining to completion of the 1980 agriculture and land reclamation plan. Emphasis went to discussion of how, during the period of readjustment of the national economy in China, to do a good job of readjusting state farms, and downward readjustment of the scale of capital construction, and doing a good job in this year's industrial and agricultural production.

In 1980, total grain output, the amount of commodity grain surrendered to the state, the total output value of industry and agriculture, and business profits from the national state farms and land reclamation system exceeded the all-time highs. Grain, cotton, oils, sugar, tea, milk, and wool saw all around increased output. Grain output totaled 15 billion jin, a 7.7 percent increase over the great bumper harvest year of 1979. Cotton output totaled 1.74 million dan, an 8.14 percent increase. Output of dry rubber totaled more than 100,000 tons, a 3.21 percent increase. Oil output totaled 2.36 million dan, a 12.4 percent increase. Sugar output totaled 27.34 million dan, a 20.3 percent increase. Tea, fresh fruit, cattle and sheep registered all around increases. The output value of agriculture reached more than 4.75 billion yuan, a 7.6 percent increase over 1979.

In the midst of readjustment of state farm and land reclamation industry during 1980, state farms everywhere placed the emphasis on development of industry on the farming industry, on the aquatic hatching industry, and on processing industries for supplying raw materials, to bring about rapid development of the light textile industry. Comparison of 1980 with 1979 shows a 41 percent increase in sugar output, a 20 percent increase in paper, and a doubling of fiber board output. A group enterprises without sources of raw materials, no markets for goods, with high energy consumption and with losses were closed, stopped, combined, or converted. Statistics from eight provinces and regions including Heilongjiang, Hubei, Liaoning, and Hebei show a total of more than 120 such enterprises closed, stopped, combined, or converted. Output value from industry totaled more than 3.9 billion yuan, a 17 percent increase over 1979.

Despite increased expenditures of more than 600 million yuan last year by state farms nationwide in the readjustment of wages and non-staple food allowances for employees, profits still totaled more than 400 million yuan.

During the past 2 years, farms everywhere have given attention to application of economic methods in the administration of enterprises, have adhered to the socialist principle of "distributions in accordance with work," have linked the welfare of the state, the collective, and individuals, and have gradually established and perfected systems of responsibility in agriculture, forestry and animal husbandry. The Heilongjiang reclamation area, which accounts for one-half the state farm and land reclamation cultivated land in China, instituted a system of responsibility of "specialized industry division of labor, individual industry accounting, assignment of tasks to teams, assignment of responsibility, assignment of responsibility to individuals, recording of workpoints against fixed quotas, calculation of remuneration on the basis of workpoints, rewards for overfulfillment of production quotas and penalties for underfulfillment of production quotas." This has greatly increased the labor productivity rate and quality of work; it has improved administration and management, and promoted development of production. Last year output of grain and beans totaled 6.7 billion jin, a 21 percent increase over 1979. Surrender to the state of 3.5 billion jin of grain and profits of 150 million yuan created all-time high records.

Readjustment of production patterns on the basis of natural conditions by state farms everywhere during the past 3 years, has won substantial economic benefits. The Xinjiang reclamation area made appropriate readjustments in the ratios of its grain and cotton area, expanding the cotton area by more than 200,000 mu even while guaranteeing grain output for substantial economic benefits. As a result of increases in per unit yields, total grain output increased by more than 50 million jin over the year before last. Cotton output totaled increases of more than 170,000 dan more than the year before last, and output of ginned cotton totaled 680,000 dan, a 71 percent increase over the year before last to create an all-time record. In the Wulagai region of Nei Monggol, where water and grass conditions are suited to development of animal husbandry, people converted four farms to pasturelands in a retrenchment of cultivation and return to pasturing to develop the grasslands livestock industry. In 1980, the herd breeding rate increased 17.3 percent over 1979, and the slaughter rate of meat animals increased 37 percent.

During the past 2 years, state farm seed production has developed toward specialization, mechanization of processing, standardization of quality, and regionalization of patterns of distribution of varieties. Last year state farms throughout the country expanded the number of seed sorting machines by more than 1000 for a general improvement in the quality of seeds used in production. There were increased applications of fertilizer and improvement in fertilization techniques. Nationally the average quantity of fertilizer used on farms rose from 24 jin in 1977 to more than 40 jin last year. Use of chemical weed killers has expanded, and management standards for fields have improved. Last year the farmland area for chemical weed eradication amounted to more than 20 million mu, or one-third the total cultivated area. Last year Xinjiang reclamation areas used 30 percent of total investment on improvement and maintenance of reservoirs, on sinking of wells and equipping them, on improvement in water diversion projects, and on leveling of land. Heilongjiang reclamation area investment during the last 3 years for purchase of farm machines and tools amounted to one-fourth total investment. Newly added combines totaled more than 1,500. In line with the Central Committee's further readjustment of the economy, the Ministry of Farms and Land Reclamation's 1980 emphasis is on attention to readjustment, improvement in administration and management levels, further development of agricultural and industrial production, and increase in the labor productivity rate and the commodity rate to win increased output and increased earnings during 1981.

First is doing a good job in agricultural production. The emphasis of agricultural production is on doing a good job of farming existing cultivated land, increasing yields per unit of area, and increasing total output. While assuring continued increases in grain output, vigorous development is to be given to animal husbandry in the raising of hogs, cattle, and sheep, and suburban farms are to develop cattle, mechanized chicken raising, and hog raising farms. Suitable expansion of the rubber area will be made to progress from the management, nurture, and cutting of existing rubber tree groves. There will be adaptation of general methods to local situations for the development of shelter forests, fruit orchards and economic forests, lumber forests, firewood forests, and fishing industry, and sideline industry production to do more diversification.

Actively development of processing industries, light textile industries, construction materials industries, and other labor intensive industries that use output of farms themselves as raw materials.

Since test operation of integrated agricultural, industrial, and commercial enterprises began in 1978, as of the end of last year 936 farms in 28 provinces, municipalities, and autonomous regions have test run integrated agricultural, industrial, and commercial enterprises. This amounts to 44 percent of the state farms in the national state farm and land reclamation system. Agricultural by-product processing has grown with the operation of more than 2,200 commercial network sites, and annual volume handled has been more than 500 million yuan. Many test operated integrated agricultural, industrial, and commercial units have increased the profits of enterprises, and have also increased revenues paid the state.

The conference noted that institution of various systems of responsibility for production requires adaptation of general methods to local situations, and must be done in accordance with actual circumstances, with no doing everything in just one way. For economic crops and operations relying primarily on handicraft industries, a system of management by contracting work may be used, contracting with teams, units, and individuals. In the case of forest trees, and fruit trees, arrangements with teams, and units can be made, and contracts for care arranged with individuals to remain unchanged for several years. Raising of fish in reservoirs, ditches, and ponds may also be contracted with teams, units, and individuals.

State capital investment for state farms and land reclamation this year is 47 percent less than last year. In view of this situation, the conference noted that the state farm and land reclamation system must shorten its capital construction battlelines, be selective in the investment of capital, assure the needs of key areas, and make the most of investments. To this end, there will be further readjustment this year in the direction of investment and the ratio of investment in each industry. Priority will go to equipping existing farming and livestock industry enterprises to improve production conditions, to increasing levels of production, to development of research, education, and hygiene, and to gradual improvement in employee living and welfare facilities. Existing capital construction projects must be further inventoried, some of them being stopped, some being slowed, and some being retained so that limited funds will assure the needs of agricultural production.

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TITLE: "A Preliminary Study of the Way and Rule of Development of Agricultural Mechanization"

SOURCE: Harbin DONGBEI NONGXUEYUAN XUEBAO [JOURNAL OF NORTHEAST AGRICULTURAL COLLEGE] in Chinese No 1, 30 Mar 81 pp 1-11

TEXT OF ENGLISH ABSTRACT: From the point of view of promoting rural economy, this article draws from practical experience of six production brigades from different districts in Heilongjiang Province and puts forward a general rule of development of agricultural mechanization. This rule is, through the four closely linked and mutually promoting processes of development, i.e., "needs and funds," "developing mechanization," "increasing wealth and liberating labor" and expanding reproduction," to continually stimulate the raising of the degrees and level of mechanization in agriculture in spirals. Due to different conditions, production brigades of different types differ from each other in the starting point in the development of agricultural mechanization and the key point during each process. The universal significance of the general rule of development of agricultural mechanization is then discussed both in Heilongjiang Province and in China as a whole.

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TITLE: "Sanjiang Plain Reclamation Project--Problems and Prospects"

SOURCE: Harbin DONGBEI NONGXUEYUAN XUEBAO [JOURNAL OF NORTHEAST AGRICULTURAL COLLEGE] in Chinese Nc 1, 30 Mar 81 pp 12-21

TEXT OF ENGLISH ABSTRACT: The Sanjiang Plain is a treasureland, abounding with virgin soil, water, herbage and forest resources. A prospective project is being undertaken to remodel it to crop-animal-forest integration as a modernized, socialist granary.

Reclamation is a conditioned enterprise, in conformity with biological and economic patterns. Disregard for or violence to these will certainly be reprimanded by nature. Haphazard land exploitation in the past has already destroyed the original ecosystem as evidenced by upsets in forest, grassland, marsh and water resource equilibria. Soil fertility has undergone progressive depreciation, with even black storms and sand storms occurring in some regions. Hence, a great deal of experience in the affirmative or negative should be deduced from the past. Reclamation reduced and simplified to soil tillage and seed sowing devoid of a comprehensive land utilization and multi-disciplinary support must unavoidably lead to abuse of natural resources. Thus, in order to exploit such resources to their fullest

[Continuation of DONGBEI NONGXUEYUAN XUEBAO No 1, 30 Mar 81 pp 12-21]

extent and to develop crop, livestock and forestry production as they should be developed, land utilization must be in accord with the evolution of a desirable ecosystem.

Concrete suggestions include:
1. Priority given to land drainage.
2. Amelioration of low-productive soil and extension of soil conservation systems.
3. Afforestation and capital investment in farmland construction.
4. Grassland improvement and expansion of animal agriculture.
5. Conservation of water reservoirs and promotion of aquiculture.
6. Formulation of a rational agricultural economic structure and appropriate land allocation system, i.e., cropland, 40 percent; forestland, 30-35 percent; grassland, 15 percent; water surface, 5-10 percent.

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TITLE: "A Discussion on the Relative Factors between the Rich or Poor Harvest of Crops and the Generation Frequency of Cold Damage in the Heihe Region"

SOURCE: Harbin DONGBEI NONGXUEYUAN XUEBAO [JOURNAL OF NORTHEAST AGRICULTURAL COLLEGE] in Chinese No 1, 30 Mar 81 pp 50-55

TEXT OF ENGLISH ABSTRACT: This paper analyzes the relationship between the active cumulative temperature, the average value of atmospheric temperature in June and August, and the changes of crop yield per mu. The results show that the yield per mu of the field crops basically depends on the change of air temperature in June. The relationship between the yield per mu of field crops and the generation frequency of the cold damage can be drawn with a figure of spaced, inclined and parallel lines according to an 11-year cycle. Only when the cold damage happened to occur in the same year as the quadrennial low yield year did we have heavy damage, with yields down greatly throughout the region.

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TITLE: "A Study of the Correlation between Seed-Stem Ratio and Other Agronomic Characteristics in Soybeans"

SOURCE: Harbin DONGBEI NONGXUEYUAN XUEBAO [JOURNAL OF NORTHEAST AGRICULTURAL COLLEGE] in Chinese No 1, 30 Mar 81 pp 56-59

TEXT OF ENGLISH ABSTRACT: Ten soybean varieties were tested in four ecologically different locations from 1973 to 1975. The results showed that the correlation between seed-stem ratio and height, pods per main stem, number of branches and pods per branch depended on ecological environment. In locations where the environmental conditions suit soybeans, the soil is fertile and the correlation coefficients are always negative, while in other locations the environmental conditions are not fit for soybeans and the correlations are positive.

In general, the correlations between seed-stem ratio and pods per main stem, pods per plant, the pods per branch and pods of main stem ratio and seed yield are positive and the more fertile the soil is, the more evident is the positive correlation. Application of this knowledge to soybean breeding was discussed.

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